

IDENTIFICATION OF *PSEUDOMYS ALBOCINEREUS*, *P. OCCIDENTALIS*, *P. SHORTRIDGEI*, *RATTUS RATTUS* AND *R. FUSCIPES* USING FOOTPAD PATTERNS.

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ABSTRACT

Identification of four species of native Western Australian Rodents (*Pseudomys* spp and *Rattus fuscipes*) and of the feral Black Rat (*R. rattus*) is described principally using patterns of footpads. Diagrams and photographs are provided.

INTRODUCTION

A study of the Western Australian Museum collections indicated that the pes (the hind foot) of many small mammals have distinctive patterns of pads which can be used to differentiate them. This paper is the second in a series to aid in the field identification of morphologically similar species (Cooper 1993).

In the southwest of Western Australia there are two sympatric species of *Pseudomys*: *P. albocinereus* (Ash-grey Mouse) and *P. occidentalis* (Western Mouse) which are often difficult to distinguish. A further two species of native rodent, *Rattus fuscipes* (Bush Rat) and *Pseudomys shorridgei* (Heath Rat) and the feral *Rattus rattus* (Black Rat) are also sympatric in the southwest of Western Australia. These three animals are often confused because of similar pelage. The Heath Rat, thought to be extinct until 1987 (Baynes *et al.* 1987), was often misidentified as *R. fuscipes*. These two groups of rodents are discussed in separate sections in this paper.

PSEUDOMYS ALBOCINEREUS AND *P. OCCIDENTALIS*

Pseudomys albocinereus has a distribution ranging from the Shark Bay area, south to the Perth area on the Swan Coastal Plain and eastwards through the wheatbelt to the southern parts of the state as far east as Israelite Bay. It is also present on Bernier, Dorre and Dirk Hartog Islands and on Woody Island in the Recherche Archipelago. This species usually inhabits low heath and shrub vegetation on sandy soils of varying depth.

Pseudomys occidentalis is limited to a small area in, and south of the southern wheatbelt. This species usually inhabits areas with



Figure 1. *P. albocinereus*. © G. Harold.

vegetation that ranges from tall woodlands to low heath. The soil usually has a high clay content with up to 70% laterite pebbles or quartz fragments (Kitchener *et al.* 1977).

Pseudomys albocinereus has soft pale grey dorsal fur with a white belly. The tail, which is slightly longer than the head and body, is pale with some pigmentation and is finely haired. The paws are pink.

The pelage of *Pseudomys occidentalis* is dark grey dorsally with greyish-white ventral fur. The tail is noticeably longer than the body, is more heavily haired than *P. albocinereus* and has a more distinct line of pigment than the *P. albocinereus*. The paws are white.

Description of Pes Patterns

These two species of *Pseudomys* can be confused as the pelage is similar, and as with all rodents there is colour variation. The quantity of tail pigmentation is also variable. Sub-adults of each species often are indistinguishable from each other. The pes of *P. albocinereus* is generally under 23mm long and the pes of *P.*

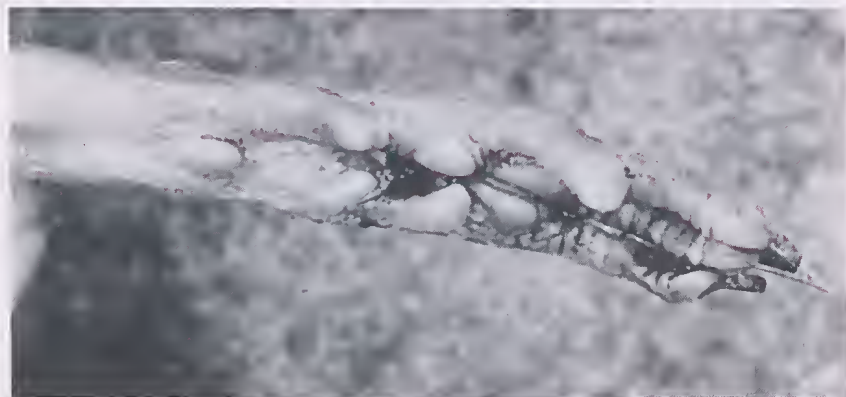


Figure 2. *P. occidentalis*. © G. Harold.

occidentalis is generally between 23–26mm in length. The main difference between the pes of *Pseudomys albocinereus* and *P. occidentalis* (Figures 1 & 2) is the granular nature of the base of the digits and of the area around the interdigital pads and the posthallucal pads in *P. albocinereus* (Figure 6; diagram of pes). In *P. albocinereus* the interdigital pads are on raised granular mounds. All interdigital and posthallucal pads in *P. albocinereus* are smaller than the terminal pads whereas in *P. occidentalis* the interdigital pads are larger than the terminal pads.

PSEUDOMYS SHORTRIDGEI, *RATTUS FUSCIPES* AND *R. RATTUS*

Pseudomys shortridgei is now restricted in Western Australia to the Fitzgerald River National Park, the Ravensthorpe Range and the Dragon Rocks Reserve near Hyden. The Heath Rat inhabits mallee heath (Baynes, 1987).

Rattus fuscipes is a predominantly coastal species. In Western Australia its range extends from Jurien Bay to east of Esperance. It is also present on many offshore islands including the Abrolhos and Recherche Archipelago. The Bush Rat is found in many different habitats ranging from dry sandy coastal vegetation to wet areas around rivers and swamps.

Rattus rattus is distributed around all coastal areas of Australia and around human habitations and areas of disturbed habitats. Its distribution is only restricted by its water requirements.

Pseudomys shortridgei is dark grey-brown dorsally and paler below. The tail is shorter than the head and body, is densely covered in hair and is bicoloured; blackish above and paler below. Females have two pairs of teats.



Figure 3. *P. shortridgei*. © G. Harold.



Figure 4. *R. fuscipes*. © G. Harold.

Rattus fuscipes is grey brown above and paler ventrally. The tail is shorter than the head and body and is not bicoloured. The female has a variable number of teats but typically there are five pairs.

Rattus rattus though called the Black Rat has dorsal pelage ranging in colour from tan to black with the belly colour ranging from dark grey to white. Ears and back feet are large and the tail is longer than the head and body. Females have five pairs of teats.

Description of Pes Patterns

The main distinction between pes of *Rattus* and *Pseudomys* is the presence of inverted heart-shaped posthallucal pads in the former (Figures 3,4,5). *Rattus fuscipes* and *Pseudomys shorridgei* pes are also different because the posthallucal pad 'I' is elongated in *R. fuscipes* but rounded in *P. shorridgei*. The main difference between the pes of *R. fuscipes* and *R. rattus* is the presence of postdigital and posthallucal granules (D, F) in *R. fuscipes* (Figure 4). Also, the posthallucal pad 'J' in *R. fuscipes* is small and round whereas in *R. rattus* it is larger and heart shaped.

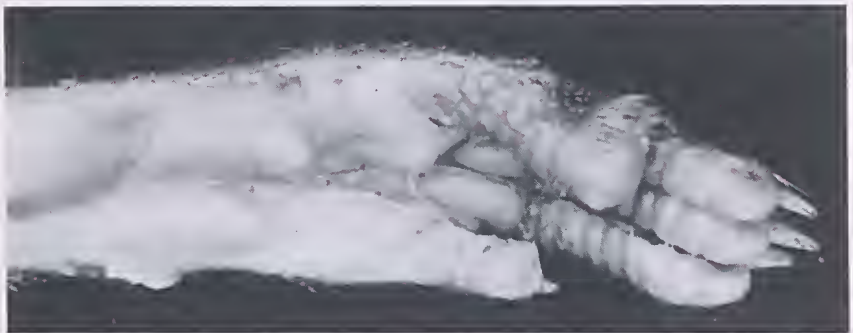


Figure 5. *R. rattus*. © G. Harold.

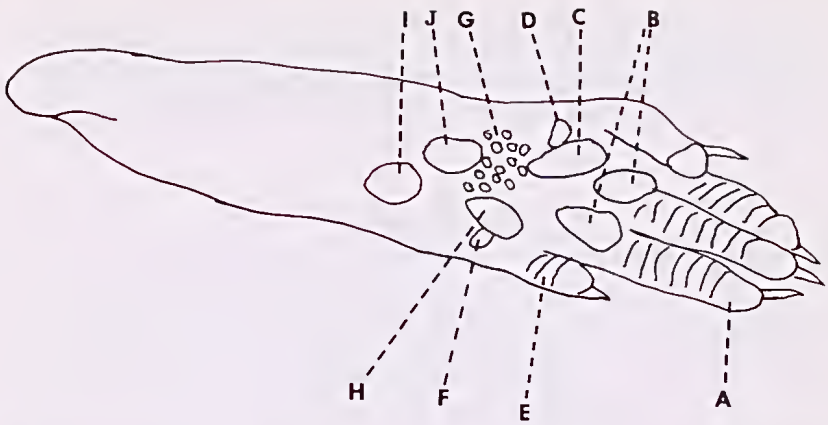


Figure 6. Diagram of right pes of rodent. (A) Terminal pad; (B) Interdigital pads; (C) Postdigital pad; (D) Postdigital granule; (E) Hallux; (F) Posthallucal granule; (G) Granules; (H,I,J) Posthallucal pads.

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